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The Southeast Asian Haze: the quality of environmental disclosures and firm performance

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Abstract

Haze continues to affect the Southeast Asian region and causes a significant deterioration in air quality. The palm oil industry is blamed for causing the haze and is urged by stakeholders to improve its accountability and transparency. Despite the growing research in environmental accountability and transparency, to the best of our knowledge, none has scrutinised stakeholders' perspectives in relation to environmental disclosure by this controversial industry. This study aims to investigate stakeholders' needs and expectations regarding environmental disclosure by palm oil companies, and to examine the quality of disclosure and its impact on firm performance. This study conducted semi-structured interviews to ascertain stakeholders' needs and expectations regarding palm oil companies' environmental disclosure. Then, content analysis of 2013–2017 annual reports of publicly listed palm oil companies was undertaken to examine the quality of disclosures. Finally, the impact of environmental disclosure on firm performance was tested using a panel data approach. One of the novel contributions from this study is the identification of an additional environmental indicator requested by stakeholders, namely information on location of logging and forest clearance, which has not been previously identified in the literature or by the Global Reporting Initiative. The study also finds that Indonesian plantation companies showed a lack of accountability and transparency in relation to the haze and other environmental issues. Malaysian companies provided slightly better disclosures year by year, indicating improved accountability and transparency. The findings also show that environmental disclosure was associated with better firm performance, but only for Malaysian companies. The Malaysian government should give serious consideration to making environmental disclosure mandatory, not only for the sake of the environment but also for the economic sustainability of the palm oil industry. Disclosure has no association with the performance of Indonesian companies, and further research should seek to identify alternative actions to improve stakeholder confidence in the Indonesian palm oil industry.

Keywords: Environmental Disclosure; Accountability; Southeast Asia; Haze; Plantation Industry

1. Introduction

In recent years, Southeast Asian skies have seasonally been blighted by choking haze that results, predominantly, from the slash-and-burn practices of palm oil plantation companies in Indonesia (Karthik et al., 2017; Purnomo et al., 2018). Toxic haze disrupts daily life and is a health hazard (Gaveau et al., 2014), and therefore poses a great public concern in the worst-affected neighbouring countries, particularly Malaysia, Singapore, Thailand and Brunei. In response to public demand, the governments of these countries have taken action to mitigate the problem, but

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such a step has led to disputes with the Indonesian government (Karthik et al., 2017; Lee et al., 2016; Padfield, 2017).

The slash-and-burn practices of palm oil companies have also received global attention. As most of the slash-and-burn activities are performed on large oil palm plantations, in early 2018, the Parliament of the European Union (EU) decided to impose restrictions on palm oil imports from Indonesia and Malaysia¹. These restrictions were imposed to sustain the environmental pillar of the United Nations' Sustainable Development Goals, specifically to reduce deforestation and climate change risks. However, a ban on palm oil negatively affects the regional economy as Indonesia and Malaysia together account for nearly 90% of the global production of palm oil (McCarthy et al., 2012; Wicke et al., 2011).

One effect of the EU's action has been to place plantation companies in Indonesia and Malaysia at the centre of attention of international media. Intense media coverage has increased the demand from both public and commercial stakeholders for greater corporate responsibility in ensuring the preservation of air quality, and better information disclosure in this regard (Purnomo et al., 2018). Despite such pressures, Indonesian and Malaysian companies still provide only general, vague environmental information (Nik-Ahmad and Ahmed-Haraf, 2013), and use 'boilerplate' language (Embong et al., 2014). Studies report that environmental disclosure aims to attain legitimacy and improve corporate image rather than provide actual accountability for harming the environment (Nik-Ahmad and Ahmed-Haraf, 2013), and such goals could explain why most companies provide more favourable news than bad news (Basamalah and Jermias, 2005; Nik-Ahmad and Mohamad, 2013). Investigations should focus on how the quality of environmental disclosure can be improved to enhance environmental performance of plantation companies (Sumiani et al., 2007).

Deegan (2017) points to the paucity of literature on measures for improving the quality of environmental disclosure, whereas most previous studies have focused on a 'managerial' approach by accepting current accounting orthodoxy (one of his examples concerns the use of the Global Reporting Initiative (GRI) guidelines as a benchmark for environmental disclosure quality despite the inherent limitations). Several other studies have focused on the roles of governance mechanisms in influencing companies to improve disclosure quality (i.e. Buniamin et al., 2008; Lee et al., 2016; Mallin et al., 2013; Purnomo et al., 2018; Trireksani and Djajadikerta, 2016; Wilmshurst and Frost, 2000). In light of this, the present study aims to scrutinise stakeholders' needs and expectations in relation to environmental disclosure. Specifically, this study investigates the disclosure expected by stakeholders with regard to information from plantation companies on their contribution to the Southeast Asian haze problem. In addition, this study examines the quality of environmental disclosures. Lastly, the study provides empirical evidence on the effects of the quality of environmental disclosure on firm performance.

To summarise, this study aims to answer three main research questions:

- (1) What are the needs and expectations of stakeholders regarding environmental information disclosure by Malaysian and Indonesian plantation companies?
- (2) What is the quality of these environmental disclosures based on the needs and expectations of stakeholders?
- (3) What are the effects of the quality of disclosure on firm performance?

¹ Although the haze does not geographically originate from Malaysia, some plantations in Indonesia are owned by Malaysian companies that contribute to transboundary haze (Varkkey, 2013; Varkkey et al., 2018).

This study provides two the academic literature on environmental disclosure. First, the study derives an improved and more specific environmental disclosure index that is pertinent to plantation industry in developing countries, based on interviews with the industry's stakeholders. Second, this study adds to environmental disclosure literature as it implements a cross-country analysis, whereas most prior research has comprised single-country studies (such as Basamalah and Jermias, 2005; Clarkson et al., 2013, 2008; Embong et al., 2014; Gray et al., 1995; Nik-Ahmad and Ahmed-Haraf, 2013; Nik-Ahmad and Mohamad, 2013; Plumlee et al., 2015; Wilmshurst and Frost, 2000). A few studies have compared disclosures in different countries, for example, Beck et al. (2010) studied environmental disclosure in the United Kingdom (UK) and Germany; Jenkins and Yakovleva (2006) investigated environmental disclosure by mining companies mainly from Anglo-Saxon countries; Aerts et al. (2008) analysed disclosure content in Belgium, France, Germany, Netherlands, Canada and the United States (US). However, none of these studies focused on companies from developing countries. The study also has implications for policy makers by providing evidence that increased environmental disclosure is likely to improve financial returns for Malaysian plantation companies, which supports the argument for mandatory disclosure. The study also shows that increased disclosure by Indonesian companies is not sufficient for increasing stakeholder trust, and that alternative actions, other than disclosure, are needed.

This study focuses on Indonesia and Malaysia for two reasons. First, sustainability issues have overwhelmed these developing countries, a prominent example being the haze problem associated with palm oil industry; second, environmental disclosure in these countries is voluntary, leading to an accountability problem. This study also provides insights into companies' environmental objectives (principally safeguarding sustainability) in largely unregulated environments.

This study is organised into six sections. This section is followed by the contextual framework of the study case, that is, the palm oil plantation industry. Section 3 presents a literature review and the research framework. Section 4 describes the research methodology and study data. Section 5 discusses the results and analysis. Finally, Section 6 reports the conclusions.

2. Oil Palm Plantation Industry and Environmental Impacts

Indonesia and Malaysia are frontrunners in terms of palm oil exports (Meijaard et al., 2018). The main importers include countries such as Bangladesh, China, Egypt, the EU-27, Iran, Pakistan, Singapore and the US (United States Department of Agriculture (USDA, 2019). In total, according to the Indonesian Statistics Agency, oil palm plantations in Indonesia occupy around 11.9 million hectares, but this value is forecast to rise to 13 million hectares by 2020. In Malaysia, oil palm plantations occupy around 5 million hectares, as recorded by the Malaysian Palm Oil Council (Meijaard et al., 2018).

Even though Indonesia has a competitive advantage in terms of having more arable land for oil palm plantations compared to Malaysia, the former requires capital and better technology in order to expand production (Varkkey, 2013). In contrast, Malaysia has a better position in terms of technology and capital, but has limited available land area for oil palm plantations. In the 1990s, the Government of Malaysia pledged to keep 50% of its forest cover, limiting the space available for further expansion of this industry (Varkkey, 2013; Varkkey et al., 2018). Therefore, when the Indonesian Government started to open up the industry to foreign investors in the 1990s, many Malaysian palm oil companies took the opportunity to establish plantations in Indonesia. As reported by Varkkey (2013), about 162 plantations in Indonesia are linked to Malaysian companies.

Other sources report that Malaysian companies own land banks in Indonesia of approximately 1.8 million ha in 2013 (Aidenvironment, 2014) and this is estimated to have increased further by now.

The palm oil industry contributes significantly to both countries' gross domestic product, employment and export revenue, but the plantations have been linked to both environmental destruction and air pollution (Miettinen et al., 2011). For example, Indonesia was among the largest greenhouse gas emitters in the world in 2015, after China and the United States, partly as a result of its palm oil activities (Olivier et al., 2017). Moreover, although other large emitting countries (such as the US, China, Brazil and the Russian Federation) showed a decrease in CO₂ emissions in 2016, Indonesia and Malaysia showed otherwise (Olivier et al., 2017). To mitigate air pollution problems, the Government of Malaysia requires palm oil companies to comply with the new Environmental Quality (Clean Air) Regulation 2014 (replacing the Environmental Quality (Clean Air) Regulations 1978), which prescribes that the limit of particulate matter for smoke emissions be reduced from 400 mg m⁻³ to 150 mg m⁻³ (Abdul Hadi and Ngatiman, 2018). In Indonesia, various government policies and laws have been enacted to solve air pollution, including: the 1999 Forestry Law, which prohibited all forms of land clearing by burning; and Law No.18 of 2013 on the Prevention and Eradication of Forest Degradation, which strengthened law enforcement by providing additional legal certainty and defining penalties for those engaged in forest destruction. In 2016, Indonesia issued a new set of moratorium restrictions (Government Regulation 57/2016) that prohibited constructing drainage systems for drying peatland and setting or allowing fires on peatland. However, weak enforcement means that all laws and regulations are largely ignored, and air pollution continues (UN Environment, 2015).

Given the environmental issues that have plagued the plantation industry in both countries, businesses face pressure for greater disclosure of environmental information (Purnomo et al., 2018). For Malaysia, pursuant to item 29, Appendix 9C of the Bursa Malaysia listing requirement, listed companies are required to disclose in their annual reports information on corporate social responsibility (CSR) activities and practices. However, Bursa Malaysia does not prescribe the contents of these disclosures. As a general guideline, the Companies Commission of Malaysia issued the Best Business Practice Circular (BBPC) 5/2013, Corporate Responsibility: Guidance to Disclosure and Reporting. BBPC suggests that companies should voluntarily disclose information on four categories: (i) marketplace, (ii) workplace, (iii) community and (iv) environment. However, the BBPC provides no specific guidance on the environmental information that companies need to disclose. Thus, environmental disclosure in Malaysia is at the discretion of companies. Indonesia has an even looser environmental reporting framework than Malaysia. Neither a specific requirement for environmental disclosure nor guidelines are available for companies listed in the Indonesian Stock Exchange. Although Indonesia uses a novel regulatory tool to promote industrial compliance with pollution control regulations, that is, the Program for Pollution Control, Evaluation, and Rating, the program targets only water pollution (Garcia et al., 2007). The highly voluntary nature of reporting in Indonesia could perhaps explain the poor environmental management performance of plantation companies that has led to the transboundary haze problem.

3. Literature Review and Research Framework

Environmental reporting should encompass the provision of valuable information for stakeholders on an organisation's impact on the environment (Deegan, 2017). This definition is parallel to that suggested by Buhr and Freedman, (2001), who defined environmental disclosure as the release of any information about an organisation's environmental impact, including monetary, quantitative non-monetary and narrative statements. Deegan, (2017) quotes the definition of 'social

accounting’ provided by Gray and Laughlin, (2012 P. 240) as a ‘more articulate’ definition of environmental disclosure:

‘Social accounting is concerned with exploring how the social and environmental activities undertaken (or not, as the case may be) by different elements of a society can be – and are – expressed. In essence, how they are made speakable – even knowable. So, the process of social accounting then offers a means whereby the non-financial might be created, captured, articulated, and spoken. The analysis of such accounts – and their absence (Choudhury, 1988) – provides a basis through which social accountability can clarify how the relationships which are largely dominated by the economic (Thielemann, 2000) might be renegotiated to accommodate – or even to prioritize – the social and the environmental within these relationships.’

From the above definitions, environmental disclosure can be considered to be about ‘accountability’. Gray et al., (2014) contend that disclosure ultimately aims to discharge the company’s accountability to its stakeholders. After reviewing literature on environmental disclosure over the last 25 years, Deegan, (2017) documents a gap between accountability, that is imagined by stakeholders, and that which is actually delivered by companies. He points out that companies’ growth and environmental accountability are unbalanced. Companies are continuously damaging the environment to generate profit (Gaveau et al., 2014; Karthik et al., 2017; Purnomo et al., 2018), and thus, company managers prefer to provide disclosures that are symbolic rather than substantive. Numerous studies have reported the unsatisfactory quality of environmental disclosures worldwide.

Clarkson et al., (2008) explored environmental disclosures within five polluting industries in the US: pulp and paper; chemicals; oil and gas; metals and mining; utilities. A comprehensive disclosure index based on the GRI Sustainability Reporting Guidelines published in 2002, was developed through such research. They divided disclosure items into two categories, namely, ‘hard’ and ‘soft’. ‘Hard’ disclosure includes four sub-categories: (1) governance structure and management systems, (2) the credibility of environmental disclosure, (3) environmental performance indicators and (4) environmental spending. ‘Soft’ disclosures consist of the following: (1) vision and environmental strategy claims, (2) environmental profile and (3) environmental initiatives. The core property of ‘hard’ disclosure is that it focuses on objective, truthful and ‘hard’ measures that cannot be easily fabricated by poor environmental performers. A company would face a lawsuit if caught misrepresenting a ‘hard’ disclosure (Clarkson et al., 2008); such disclosure can be considered a high level of environmental reporting transparency and accountability (Patten, 2002). A company would also be exposed to the risk of losing suppliers and/or customers if it were found to be lying about a ‘hard’ disclosure (Cormier and Magnan, 2003). By contrast, ‘soft’ disclosures are regarded as unverifiable claims, subjective and broad and easily manipulated. Clarkson et al., (2008) demonstrated that companies with poor environmental performance are likely to disclose more ‘soft’ information to change stakeholder perceptions about their actual performance.

The relationship between environmental disclosure and a firm’s monetary value has been empirically shown to be positive in the US (Clarkson et al., 2013; Plumlee et al., 2015). In addition, ‘soft’ disclosure, although claimed to be the least reliable information (Clarkson et al., 2008), was also found to positively influence investors’ perceptions of a company. Thus, we can argue that the main motive for disclosure is to increase a company’s legitimacy or to use it as a signalling strategy (Clarkson et al., 2013; Deegan, 2017; Deegan and Shelly, 2014; Plumlee et al., 2015; Spence et al.,

2010). Environmental disclosure is generally presented in such a way that it can build a positive corporate image by highlighting ‘good news’ and withholding information about detrimental activities (Plumlee et al., 2015). Cho et al., (2010) provided evidence that poor environmental performers in the US show propensity to use biased language and verbal tone in their environmental reports to make them sound more ‘optimistic’. Interestingly, poor performers provide more extensive disclosure to manage their reputational risk (Cho et al., 2012) and reduce any political and social pressures on the company (Cho and Patten, 2007; Walden and Schwartz, 1997).

In the UK, one of the prominent studies is that by Gray et al., (1995), who classified environmental disclosure as one of the fundamental elements of CSR disclosure. They examined CSR disclosure in UK company annual reports over a 13-year period (1979 to 1991). Compared with the other elements of CSR (i.e. information on human resources and community and customer relations), environmental disclosure has increased dramatically in terms of the percentage of companies disclosing throughout the study period especially after the mid-1980s. However, in terms of disclosure quality, environmental disclosure was the lowest, and on average, it had been disclosed in less than a half page of annual reports. Gray et al., (1995) concluded that ‘the tone, orientation and focus of the disclosure accord much more closely to the legitimization strategies’, whereby companies use disclosure to alter stakeholders’ perceptions of their green performance. Companies occasionally manipulate information to demonstrate satisfactory environmental performance. The findings of Gray et al., (1995) are supported by the subsequent studies (such as Beck et al., 2010; Brammer and Pavelin, 2008; Campbell, 2004, 2003).

Wilmshurst and Frost, (2000) provided limited support for legitimacy theory in the Australian context. They surveyed chief finance officers to ask about motives for management to disclose environmental information. Their responses were tested against the actual environmental reporting within their company’s annual report, and a positive correlation was found between the desire of management to fulfil the needs of stakeholders (including shareholders, suppliers, customers and community) and the number of words used in disclosure in the annual report. Although their result is consistent with the findings of Guthrie and Parker, (1989), who also failed to find support for legitimacy theory as an explanatory factor for environmental disclosure in Australia, their findings cannot ascertain that companies were less likely to report legitimacy as motive. However, their study measured only the number of words in disclosure and ignored the type of information, which is an important indicator of motives for disclosure. Other research (e.g. Cowan and Gadenne, 2005; Deegan and Gordon, 1996) has shown that Australian companies are inclined to highlight more ‘positive’ and ‘soft’ information to seek approval from stakeholders and to use disclosure as part of a legitimacy strategy.

Wilmshurst and Frost, (2000) investigated motives for disclosure based on managers’ perceptions, whereas Deegan, (2017) highlighted that management and stakeholders present different views on social and environmental disclosure. He also notes that ‘how it can be imagined is very different to how social accounting is typically undertaken’. This finding aligns with the study of Bouma and Kamp-Roelands, (2000), who documented that management and stakeholders differ from each other over the content of environmental disclosure. Therefore, that management will meet the actual needs of stakeholders is doubtful. The present study identifies the actual needs and expectations of stakeholders regarding environmental disclosure, and the extent to which companies have fulfilled these needs and expectations.

In this paper, we adopt the accountability model proposed by Knouse, (1979) in which the criteria for measuring accountability relate to stakeholders’ expectations of the environmental performance for a company. Accountable behaviour is then measured in terms of performance meeting expectations; if the company performs well, it receives certain rewards from stakeholders

in return. Knouse, (1979) contends that this accountability model may strengthen a company's motivation to be accountable. This model is adopted in the present study.

4. Research Method and Interview Findings on Stakeholders' Needs and Expectations

This study applies qualitative and quantitative research methods in two phases of data collection. First, semi-structured interviews were conducted to identify stakeholder needs and expectations in relation to environmental disclosures made by plantation companies. Due to difficulty in obtaining access, only four organizations are involved in this study which are: a government agency; a non-governmental organization (NGO); a palm oil buyer; and an investor. These four organizations were chosen because previous studies indicated that regulators (in this research represented by a government agency), community members (represented by an environmental NGO), suppliers/customers (represented by a palm oil buyer) and shareholders (represented by an investment company) are key stakeholders who can influence companies' environmental performance (Bouma and Kamp-Roelands, 2000; Purnomo et al., 2018; Smaliukienė, 2007; Stechemesser and Guenther, 2012; Wilmshurst and Frost, 2000).

For the government agency, we talked to three high ranking officers from three different departments in an interview session. All of them are key persons in the Malaysian government agency and have different roles and knowledge with respect to corporate environmental responsibility. They have been involved in a series of international negotiations and sub-regional meetings discussing the transboundary Southeast haze issue. For the other three organizations, the interviews were one-to-one and conducted with key people from each organization. Their roles and areas of expertise are summarised in Table 1.

Table 1: Six interviewees in the first phase of the study

Interview	Organization	Position	Roles and areas of expertise
S1 (3 persons)	Government agency	High-ranking officers	Environmental policy, regulation, and governance; involved in international negotiations and sub-regional meetings discussing haze issues (these meetings involved 5 Southeast Asian countries, i.e. Indonesia, Malaysia, Singapore, Brunei and Thailand).
S2 (1 person)	Non-governmental organization	President	Represents the community's voice regarding environmental issues in Southeast Asian countries, especially Indonesia, Malaysia, Singapore and Thailand.
S3 (1 person)	Industrial sector	Company chairman	The operations of palm oil plantations and the palm oil business.
S4 (1 person)	Investment company	General manager	Involved in investment decision making (mainly in the plantation industry),

			knowledge of palm oil supply chains from a local and global perspective.
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Face-to-face semi-structured interviews were conducted in English and each interview session started with a brief explanation about the research and the objectives of the interview. Each interview session lasted approximately 1–2 hours. For ethical reasons the interviewees were assured of data confidentiality and were given the right to withdraw from the interview at any time. Informal interview settings were selected to enable free discussion but guided by an interview protocol. Interviewees were asked open-ended questions related to their needs and expectations of environmental disclosure in the context of the palm oil industry. They were also encouraged to present their views on: i) the transparency of palm oil companies, ii) the need for disclosure guidelines and, iii) the sustainability of palm oil industry.

The interviews were transcribed and directed content analysis was employed to analyse the data. Hsieh and Shannon (2005) explain that the goal of a directed approach to content analysis is to validate or extend existing research about a phenomenon that is incomplete. Even though multiple studies have discussed environmental disclosure, to the best of our knowledge, none has focused on the environmental disclosure by palm oil companies in developing countries. Besides, previous research has revealed that the practices of environmental disclosure differ between industries due to industry-specific characteristics (Jenkins and Yakovleva, 2006) such as the legitimacy threats that each industry faces (Nik-Ahmad and Ahmed-Haraf, 2013).

Following the directed approach, we used a disclosure index, similar to that used in previous research and based on the GRI guidelines, for the initial coding. Any text that could not be coded were analysed as if they represented a new category or subcategory of an existing code. For example, in response to the question about expectations and needs of environmental disclosure, one of the interviewees in S1 (government agency) said *“the company should have [an] environmental performance monitoring and control committee in place so that this committee can discuss what action should be taken and this should be reported to the government and public”*. Another mentioned that *“Some companies did report about their prevention program or called as ‘socialization program’. Some companies reported that they have provided firefighting equipment and trained workers to detect fires but for Indonesian companies this is not enough. Because Sumatera has more than 100,000 hectares of peatland forests, so if they want to control this problem, they must tell us that they have a proper management of peatland”*. These responses show that disclosures pertaining to a company’s governance and initiatives program with respect to environment are important to the stakeholders. We then classify these items under one category namely ‘environmental initiatives and governance’. It is worth noting that even though previous studies (such as Clarkson et al., 2013, 2008) have discussed ‘environmental initiatives and governance’ information, we validated the need for this information in the context of the palm oil industry through interviewing stakeholders.

We also extend existing research by identifying the need for information on ‘location of logging and forest clearance’. This item was absent from previous studies including Clarkson’s index and the GRI guidelines, and its identification is one of the novel contributions of this study. Regarding this information, the interviewee in S2 (NGO) elaborated that *“...when we know the locations, we can also know actually if a certain company has planted at the right or wrong place. It is important because if a company plants on peatland, it means that it chose the wrong place because it could be the beginning of fire...”*. This shows that stakeholders have their own reason

for asking for particular information from the palm oil companies. The other types of information that are important to stakeholders, identified by the content analysis on the interview transcript, are summarized in Table 2.

Table 2: Modified environmental disclosure index

Items		Item mentioned in interview			
		S1	S2	S3	S4
Location of operations	The number of countries where the company has significant operations	√	√	√	√
	The names of countries where it has significant operations	√	√	√	
	Location of logging and forest clearance	√	√	√	
Non-compliance	Amount spent on fines related to environmental issues		√	√	√
	Total number of non-monetary sanctions for non-compliance with environmental laws and/or regulations		√	√	√
	Cases brought through dispute-resolution mechanisms; or		√	√	√
	If the organization has not identified any non-compliance with environmental laws and/or regulations, the company shall make a brief statement of this fact		√	√	√
Environmental performance Indicators (EPIs)	EPI on greenhouse gas emissions	√	√	√	√
	EPI on other air emissions	√	√	√	√
	EPI on chemical releases	√	√	√	√
	EPI on environmental impacts of products and services	√	√	√	√
	EPI on compliance performance (e.g. excesses, reportable incidents)	√	√	√	√
Environmental budgeting	Summary of money savings arising from environmental initiatives	√			√
	Amount spent on technologies, R&D, and/or innovations to enhance environmental performance and/or efficiency	√		√	√

	Expenditure on insurance for environmental liability				√
Environmental initiatives and governance	Environmental protection programs	√	√	√	√
	Existence of a department for pollution control and/or management positions for environmental management	√	√	√	√
	Existence of an environmental and/or a public issues committee in the board	√			√
	Implementation of ISO 14001 at the plant and/or firm level	√	√	√	√
	Awards received by the company that relate to environmental best practices			√	√

Table 2 presents the details of the modified disclosure index taking account the needs and expectations identified in the interviews. Surprisingly, all requested information falls in the category of ‘hard’ disclosure. In relation to ‘hard’ disclosure, Clarkson et al., (2008) noted the following:

‘...hard information focuses on objective, ‘hard’ measures that cannot be easily mimicked by poor environmental performers (EP). Verrecchia (1983) and Dye (1985) require a content analysis disclosure index that puts a heavy emphasis on objective measures of performance as opposed to soft (i.e., not easily verifiable) claims to be committed to the environment. As a simple example, consider a good and a poor EP type firm in the same industry. The good EP firm will voluntarily disclose objective measures of environmental impact (e.g., quantitative environmental performance indicators) and will benchmark its performance relative to the industry, something the poor EP firm will not want to do.’ (p. 309)

‘Hard’ information is requested by stakeholders, as Indonesian and Malaysian plantation companies disclose very little information in their annual reports (Embong et al., 2014; Nik-Ahmad and Mohamad, 2013; Nik-Ahmad and Sulaiman, 2004; Sumiani et al., 2007). For the purposes of the present study, the modified version of the disclosure index is believed to be a better measure of the quality of environmental disclosures by plantation companies because it considers all information useful to stakeholders. Moreover, previous studies have been critiqued by Deegan (2017) for relying heavily on the GRI guidelines in measuring disclosure quality despite their limitations.

The second phase of data collection involved content analysis of narratives in annual reports. This phase was conducted to meet the study’s objective of examining environmental disclosure practices based on stakeholder needs and expectations. This part of the study analysed 204 annual reports of plantation companies in Indonesia and Malaysia between 2013–2017. The modified disclosure index, derived from the interviews, was used to score each item with 0 for non-disclosure and 1 for disclosure. The impact of environmental disclosure on return on assets (ROA) was then tested utilizing a panel data approach. One of the advantages of this approach is that it provides a means of controlling the impact of omitted variables and hence, provides more robust econometric estimates (Hsiao, 2007). This study controlled for company and governance characteristics, which

are widely recognised as determinants of firm performance and disclosure in other studies – such characteristics included company size and leverage (Abdullah et al., 2015; Banghøj and Plenborg, 2008; Grauel and Gotthardt, 2017; Li et al., 2018; Radhouane et al., 2018), growth (Banghøj and Plenborg, 2008; Chou et al., 2013; Hamrouni et al., 2015; Radhouane et al., 2018), board size (Chou et al., 2013; Hoque et al., 2013; Hossain et al., 2001; Radhouane et al., 2018), board independence (Cormier et al., 2011; Hossain et al., 2001; Klein, 1998; Radhouane et al., 2018), frequency of board meeting (Chou et al., 2013; Hoque et al., 2013; Radhouane et al., 2018; Vafeas, 1999) and audit quality (Bokpin, 2013; Ettredge et al., 2011). Ettredge et al. (2011) suggest that large accounting firms (Big 4) should exhibit better knowledge of disclosure and share such knowledge with their clients particularly when involving bad news disclosure, such as fines and penalties for non-compliance with environmental laws. Hence, this study uses panel data analysis to estimate the following model:

$$Firm\ performance_{it} = \beta_1 EnvDisc_{it} + \beta_2 LnSize_{it} + \beta_3 Growth_{it} + \beta_4 Leverage_{it} + \beta_5 BODSize_{it} + \beta_6 BODMeet_{it} + \beta_7 BODInd_{it} + \beta_8 AuditQual_{it} + c_i + \varepsilon_{it}....[1]$$

Where, firm performance = ROA(profit before interest and tax/total assets); EnvDisc = environmental disclosure (actual disclosure score/ total possible disclosure score); LnSize = company size (natural logarithm of total assets); Growth = growth (current-year sales/previous-year sales); Leverage = leverage (total liabilities/total assets); BODSize = the size of the board of directors (number of directors); BODMeet = frequency of BOD meetings (number of BOD meetings held throughout the accounting year); BODInd = independence of BOD (number of independent non-executive directors/total number of directors); AuditQual = audit quality (1 if external auditor is one of the ‘Big 4’ audit firms; 0 otherwise).

5. Empirical Results and Discussion

5.1 Descriptive statistics

Table 3 presents the descriptive statistics. Firm performance, measured as ROA, is higher in Malaysian companies than in Indonesian ones. This result was expected, as Malaysian plantation companies possess distinct advantages in capital and related technology over Indonesian plantation companies (Varkkey, 2013). As expected, Malaysian companies disclose better quality environmental information than Indonesian companies, as Malaysia features a better voluntary disclosure environment (see Section 2). These findings are corroborated in the literature (i.e. Craig and Diga, 1998; Patel et al., 2002). Table 3 also provides descriptive statistics regarding the sample companies’ explanatory variables. Company size is larger for Malaysian companies, with average total assets of USD2.019 billion, whereas Indonesian companies present a considerably higher degree of leverage and level of risk. Malaysian and Indonesian companies exhibit different corporate governance practices, with Malaysian companies featuring larger BODs with more independent members, but they meet less frequently. Finally, Malaysian companies achieve a higher quality audit than Indonesian companies.

Table 3: Mean scores of all variables by country (n=204 annual reports)

Variables	Malaysia	Indonesia
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Return on assets	0.079	0.045
Environmental disclosure	0.522	0.456
Company size (in billions of USD)	2.019	0.610
Growth	1.062	1.291
Leverage	21.176	35.063
Size of BOD	8.320	5.270
Meeting frequency of BOD	6.090	11.370
Independence of BOD	0.485	0.152
Audit quality	0.860	0.440

5.2 Quality of environmental disclosures

Figure 1 plots the average scores for environmental disclosures of Malaysian and Indonesian companies for years 2013 to 2017. As per the figure, Malaysian companies provided slightly better disclosures year by year, indicating that they were attempting to improve their accountability and to meet stakeholders' information needs. The year-by-year increase in accountability of Malaysian companies might be a response to increased environmental awareness in both the community and industry, especially after the experience of living in polluted air. This finding is consistent with an explanation offered in interview S1:

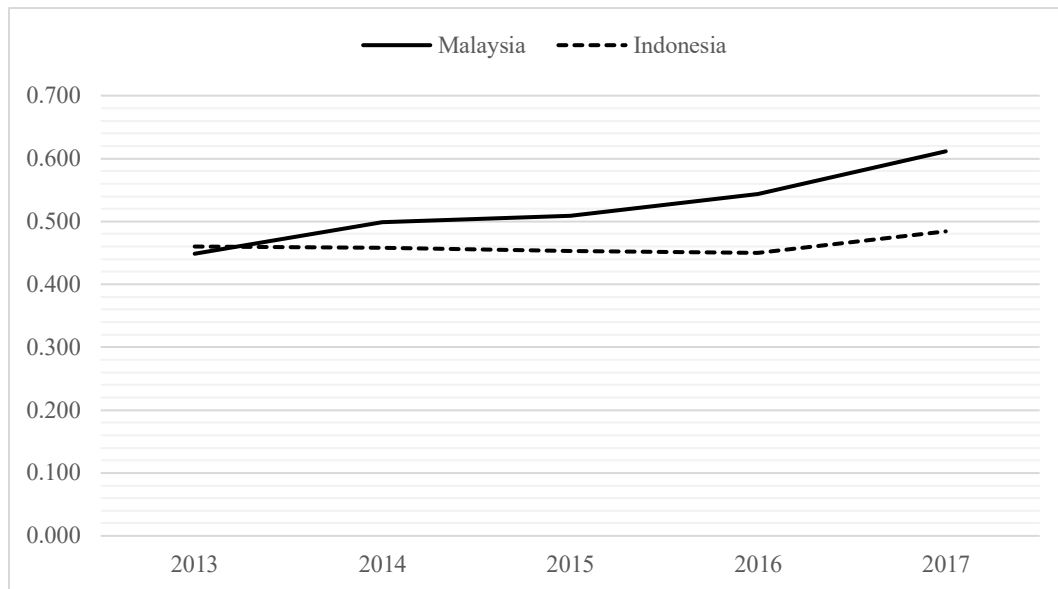
'The Malaysian government is moving to a self-regulation approach to speed up the process of embracing environmental responsibility. We shouldn't force them; they should do it because they know that it is their responsibility'.

By contrast, the disclosure quality of Indonesian plantation companies slightly decreased from 2013 to 2016, indicating lack of concern among Indonesian companies in responding to stakeholder demands, specifically in relation to information on Southeast Asian haze. Indonesian companies have become more cautious in revealing environmental information, perhaps to avoid attracting unwanted scrutiny by stakeholders and to reduce litigation risks (Clarkson et al., 2008). Many local and international newspapers reported that numerous Indonesian plantation companies were sued and forced to pay more than USD100 million in fines after being found guilty of causing forest fires and the resulting transboundary haze (Munthe, 2016; The Jakarta Post, 2015; The Straits Times, 2016). In Singapore, the Transboundary Haze Pollution Act 2014 allows the government to prosecute companies (in or outside Singapore) that cause environmental pollution in its territory, and this condition may deter Indonesian companies from revealing much information.

Nevertheless, the disclosure practice of Indonesian companies improved drastically in 2017, most probably due to intense pressure from the EU, especially after the recommendation to stop deforestation was voted on by Members of European Parliament on 4 April 2017 (European Parliament, 2017; Meijaard et al., 2018). Although the EU's action has provoked a strong backlash from the palm oil industry in Indonesia, surprisingly, however companies have shown increased environmental disclosure in 2017. This result is consistent with that of Walden and Schwartz,

(1997), who reported that companies opt to provide better environmental disclosures when experiencing strong public pressures. To a certain extent, this situation might indicate that the EU possesses coercive power in ameliorating accountability of palm oil companies in developing countries. However Islam and Deegan (2008) suggest that companies in developing countries change their disclosure practice after receiving strong public pressure because of survival considerations rather than real attempts to hold accountability for their activities.

Figure 1: Average scores on the index of environmental disclosure of Malaysian and Indonesian companies



Independent sample t-tests were used to investigate differences in quality of disclosure between Malaysian and Indonesian companies. Table 4 shows that the largest difference in scores between Malaysian and Indonesian companies was observed in location of operations and EPI categories, which presented significance at $p < 0.01$. This information cannot be easily fabricated by poor environmental performers, and a company would face litigation if caught misreporting such information (Clarkson et al., 2008). As Indonesian companies had caused large forest and peatland fires, which contributed to a hundred thousand early deaths and economic losses (Purnomo et al., 2018), these companies naturally avoid disclosing the location of operations and their poor environmental performance to outsiders (European Parliament, 2017). Indonesian companies, though, disclosed significantly more non-compliance information than Malaysian companies possibly because such information about Indonesian plantation companies is already in the public domain and reported by the media. Thus, these companies have little to gain from withholding non-compliance information from stakeholders in their annual reports. Nonetheless, as shown in Table 4, the degree of disclosure for Indonesian companies is extremely low at an average of 0.104. Such reporting behaviour can be explained through attribution theory, which, as discussed by Coombs, (2007), explains how managers select ‘appropriate’ information to disclose to outsiders; in return, blame is transferred from themselves onto uncontrollable events.

Table 4: Results of t-tests on differences between mean scores of Malaysian and Indonesian companies on five categories of environmental disclosure index (n =204)

Disclosure categories	Country	Mean	Standard deviation	<i>t</i>	Sig.
Location of operations	Malaysia	0.885	0.168	7.197	0.001***
	Indonesia	0.731	0.174		
Non-compliance	Malaysia	0.083	0.132	-0.992	0.032*
	Indonesia	0.104	0.180		
Environmental performance indicators (EPI)	Malaysia	0.709	0.327	8.369	0.000***
	Indonesia	0.382	0.319		
Environmental budgeting	Malaysia	0.384	0.371	-2.944	0.005**
	Indonesia	0.512	0.252		
Environmental initiatives and governance	Malaysia	0.465	0.214	-2.213	0.164
	Indonesia	0.543	0.255		

Note: Statistical significance: ***< 0.01, ** < 0.05, * < 0.10

5.3 Multivariate Tests and Discussion

The Hausman Test was conducted to decide whether the fixed-effects or random-effects model is more suitable in this study (Greene, 2008). The test results indicated that the use of random-effects was more suitable in the context of this study ($p > \chi^2 = 0.6957$). Table 5 presents the results of analysis using random-effects method. The quality of environmental disclosures made by Malaysian companies is positively associated with ROA at $p < 0.01$. This result, consistent with accountability theory, suggests that when a company demonstrates a certain level of accountable behaviour by reporting necessary information, the company can maintain a positive buyer–supplier relationship (Huang et al., 2014; Huang and Huang, 2018) to gain trust and confidence from investors and operate without restrictions (either from government or from NGOs) (McCarthy et al., 2012). Ultimately, this condition will increase the company’s earnings (Ho et al., 2010; Spekman and Davis, 2004). In relation to these arguments, one of the interviewees (in S3) acknowledged the importance of environmental disclosure by stating:

‘...before anything else we will check the background of a company and its history to know what the company has done in the past. Was there a problem that the company caused? We will check that the company has cut the right trees and what technology is used to produce the plantation product. All of those reports will be considered in making a decision...’

Despite the positive effects of disclosure quality on Malaysian companies’ performance, no significant relationship was found between disclosure quality and ROA for Indonesian companies. As reported in earlier studies, Indonesian plantation companies have suffered damage to their image and monetary losses due to extensive deforestation and toxic haze that they have caused (Lee et al., 2016). McCarthy et al., (2012) revealed that downstream members of a supply chain (i.e. the major suppliers of products containing palm oil) can be very sensitive to a supplier’s bad reputation. For instance, several companies have terminated their contracts with producers. McCarthy et al., (2012) cited actual cases as evidence (p. 555):

‘Unilever, the world’s largest buyer of palm oil, “blacklisted two major Indonesian members of the Roundtable on Sustainable Palm Oil (RSPO) for engaging in ‘unsustainable’ practices” (Anon, 2010). Nestle, the world’s biggest food and beverage company, announced it would

also withdraw from another key Indonesian supplier. Earlier, the World Bank Group also ordered a complete moratorium on investment in palm oil (Jia, 2009)'.

In this regard, we argue that voluntary environmental disclosures are insufficient to compensate for reputational damage to the image of Indonesian plantation companies. With respect to control variables, Table 5 demonstrates that leverage forms a negative relationship with firm performance of companies in both countries. This result was expected as higher leverage usually signals higher financial risk, which will downgrade a company's credit rating and performance (Meng et al., 2014). Size of companies exhibits a positive impact on firm performance in Indonesia but not in Malaysia. This result was expected as Malaysia has greater restrictions on land use, thus limiting the opportunity for large companies to expand their operations, although they possess resources to do so (Varkkey, 2013; Varkkey et al., 2018). By contrast, Indonesia has weaker restrictions, allowing companies with financial resources to expand and generate higher returns (Varkkey, 2013).

Table 5: Relation between ROA and environmental disclosure with control variables (n=204)

Variable	Malaysia		Indonesia	
	Coefficient	Std. Err	Coefficient	Std. Err
EnvtDisc	0.0042	0.0017***	-0.0016	0.0041
LnSize	-0.0017	0.0089	0.0345	0.0136***
Growth	0.0031	0.0174	-0.0025	0.0049
Leverage	-0.0011	0.0005**	-0.0025	0.0008***
BODSize	-0.0022	0.0038	-0.0017	0.0073
BODMeet	-0.0018	0.0019	0.0011	0.0014
BODInd	-0.0328	0.0486	-0.0336	0.0616
AuditQual	0.0058	0.0181	0.0021	0.0294
Constant	0.1242	0.1739	-0.8697	0.3672**
Wald χ^2	14.6400**		20.6100***	
Sigma_e	0.0299		0.0676	
Sigma_u	0.0357		0.0459	
θ	0.649		0.4501	
R ²	0.3088		0.3585	

Note: Statistical significance: ***< 0.01, ** < 0.05, * < 0.10

5.4 Additional analysis

Prior literature suggests that environmental disclosure is an endogenous variable that should correlate with the error term (Al-Akra and Ali, 2012; Li et al., 2018; Moumen et al., 2015; Radhouane et al., 2018; Wang et al., 2013). To mitigate the endogeneity problem caused by omitted variables and simultaneity bias, an instrumental variables approach was employed. This study uses a two-stage least square instrumental variable (2SLS-IV) method using environmental disclosure lagged by one year as instrument. As shown in Table 6, the first-stage model is highly significant, indicating that it is a good choice of instrumental variable.

First stage:

$$EnvDisc_{it} = \beta_1 EnvDisc_{it-1} + \beta_2 LnSize_{it} + \beta_3 Growth_{it} + \beta_4 Leverage_{it} + \beta_5 BODSize_{it} + \beta_6 BODMeet_{it} + \beta_7 BODInd_{it} + \beta_8 AuditQual_{it} + c_i + \varepsilon_{it}....[2]$$

Second stage:

$$FirmPerformance_{it} = \gamma_1 EnvDisc_{it} + \gamma_2 LnSize_{it} + \gamma_3 Growth_{it} + \gamma_4 Leverage_{it} + \gamma_5 BODSize_{it} + \gamma_6 BODMeet_{it} + \gamma_7 BODInd_{it} + \gamma_8 AuditQual_{it} + c_i + \mu_{it}....[3]$$

The results in Table 6 further confirm the positive relationship between environmental disclosure and ROA for Malaysian companies and the lack of significant association for Indonesian companies. The negative association between leverage and ROA also holds for both countries. In the 2SLS model, the board meetings variable presents a negative association with ROA for Malaysian companies. Boards require more meetings when they include more members (Al-Najjar, 2012), but the more frequently they meet, the more communication problems or conflict may occur in the boardroom, leading to less efficient decision making and lower firm performance (Cheng, 2008).

Table 6: Results of 2SLS random-effects IV test (n=204)

Variable	Malaysia		Indonesia	
	Coefficient	Std. Err	Coefficient	Std. Err
EnvDisc	0.0069	0.0026***	0.1943	0.0274
LnSize	0.0031	0.0072	0.0356	0.0247
Growth	0.0271	0.0207	-0.0026	0.0055
Leverage	-0.0013	0.0004***	-0.0027	0.0010***
BODSize	-0.0032	0.0031	-0.0054	0.0098
BODMeet	-0.0048	0.0016***	-0.0009	0.0830
BODInd	-0.0807	0.0530	-0.0402	0.0831
AuditQual	0.0013	0.0154	-0.0038	0.0371
Constant	0.0190	0.1260	-1.0242	0.5458*
First Stage F-Stat	212.0000***		69.6000**	
R ²	0.4637		0.2682	

Note: Statistical significance: *** < 0.01, ** < 0.05, * < 0.10

6. Conclusions

This study aims to investigate stakeholders' needs and expectations regarding plantation companies' environmental disclosure, the quality of disclosure, and its impact on firm performance. Interestingly, this study identified a new disclosure item that is requested by stakeholders, that is, 'location of logging and forest clearance'. This result can be considered one of the novel contributions of this study, as this item was absent in prior studies and the GRI guidelines.

We discovered that Malaysian companies provided slightly better disclosures over the course of a five-year study period than Indonesian companies, perhaps due to a better voluntary disclosure environment and increased environmental awareness among Malaysian communities. Statistical analyses show that disclosure quality positively affects Malaysian companies' performance but not that of Indonesian companies. These findings indicate the limited applicability of accountability theory in predicting the relationship between disclosure quality and firm performance. In certain

circumstances, stakeholders show no positive response to accountability, as seen in the case of Indonesia.

The results of the study have two key policy implications. First, companies should be encouraged to include information about the location of logging and forest clearance in their environmental disclosures, as this is viewed as necessary information by the palm oil industry's stakeholders. Second, improved disclosure is likely to be beneficial for Malaysian companies, both in terms of their accountability and financial performance. However, for Indonesian companies improved disclosure is not sufficient for changing stakeholders' concerns regarding environmental performance, and therefore policy makers in Indonesia need to consider additional measures, beyond disclosure, in order to address those concerns.

This study acknowledges a number of limitations. First, this study interviewed only six stakeholders to answer the first research question. Although this value is an acceptable number of interviewees based on previous research, we might have received a broader range of responses if we had included more interviewees. Second, this study measured environmental disclosure quality based on index scores. This measurement has been widely used in previous studies, but it neglects the tone and style of environmental disclosure.

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